

# PATENT ABSTRACTS OF JAPAN

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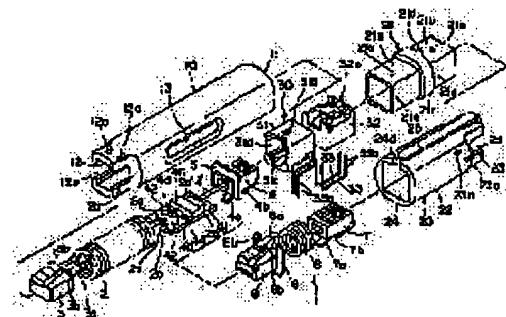
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## (54) CABLE ADAPTER DEVICE

### (57)Abstract:

PROBLEM TO BE SOLVED: To provide a cable adapter device with improved portability and use convenience, which connects between a PHS or portable telephone and a portable information terminal of electronic notebook or the like.

SOLUTION: A device body 10 is formed in cylindrical shape. In this body 10, a curl-shaped wire cable 2 is stored to be in/out-handleable. In one end of the wire cable 2, a mini-plug 3 of modular plug type provided with a PHS or portable telephone connecting plug conductor part 3a is left as connected. In an opening part 11 of the body 10, a cover unit 20 is provided mountably/demountably. This cover unit 20 has a mail/female change connector 30 connected with a modular plug 4 in the other end side of the wire cable 2 in the body 10, to be also constituted by an intermediate cap 21 removably mounted in the body 10 and a head cap 22 having a clip 25 to be removably mounted in the intermediate cap 21 also to store the other curl-shaped wire cable 6 to be in/out-handleable.



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CLAIMS

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[Claim(s)]

[Claim 1] In the cable adapter equipment which attached the lid in this body of equipment free [ attachment and detachment ] while containing the electric-wire cable in the body of equipment While containing the above-mentioned electric-wire cable which formed the above-mentioned body of equipment in tubed, and was looped around in the shape of curl in this tubed body of equipment, enabling free receipts and payments the ends side of this electric-wire cable -- a cable connector -- respectively -- connecting -- one side of these cable connectors -- a plug -- a conductor -- the cable adapter equipment characterized by considering as the mini plug equipped with the section.

[Claim 2] Cable adapter equipment characterized by to attach the male-and-female conversion connector to which the cable connector by the side of the end of an electric-wire cable besides the above is connected in the above-mentioned lid while containing other electric-wire cables which formed the above-mentioned lid in tubed and were looped around in the shape of curl in this tubed lid in cable adapter equipment according to claim 1, enabling free receipts and payments and connecting the cable connector to the ends side of these other electric-wire cables, respectively.

[Claim 3] The cable adapter equipment carry out having contained free in receipts and payments [ cable / which constituted from a head cap furnished with a clip, and looped around in the shape of curl in this head cap / the electric-wire cable besides the above ] as the description in cable adapter equipment according to claim 2 while attaching the above-mentioned lid free [ attachment and detachment on the medium cap attached in the above-mentioned body of equipment free / attachment and detachment / while having the above-mentioned male-and-female conversion connector, and this medium cap ].

[Claim 4] Cable adapter equipment characterized by intervening a conversion circuit between the above-mentioned cable connectors in cable adapter equipment according to claim 1 the other end side of the above-mentioned electric-wire cable which connected the above-mentioned mini-plug to the end.

[Claim 5] cable adapter equipment according to claim 1 -- setting -- the plug of the above-mentioned mini-plug -- a conductor -- the cable adapter equipment characterized by enabling receipt in the above-mentioned electric-wire cable which looped around the section in the shape of [ above-mentioned ] curl.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is cylindrical and relates to the portable good new cable adapter equipment which stored the electric-wire cable of the letter of curl in the pen type case, for example.

[0002]

[Description of the Prior Art] For example, Personal Digital Assistants (PDA:Personal Digital Assistants) which have an electronic notebook and a modem (modem), such as a personal computer and pocket facsimile, are known. When using this Personal Digital Assistant outdoors etc., collection, informational retrieval or dispatch, etc. can be communicated by connecting a Personal Digital Assistant to communication lines, such as an ISDN dial-up line, through a portable electric-wire cable.

[0003]

[Problem(s) to be Solved by the Invention] However, when using the above-mentioned Personal Digital Assistant outdoors etc., in order always to have to carry an electric-wire cable, carrying of an electric-wire cable etc. was inconvenient and it was dramatically user-unfriendly. In addition, although rolling round and containing a portable electric-wire cable was also considered, by the rolling-up formula concerned, it needed to roll round after communication link termination and the activity was complicated.

[0004] Then, this invention has the good storability of an electric-wire cable, it is excellent in portability, and, moreover, it offers user-friendly cable adapter equipment.

[0005]

[Means for Solving the Problem] while contain an electric-wire cable in the body of equipment and containing the above-mentioned electric-wire cable which formed the above-mentioned body of equipment in tubed, and looped around in the shape of curl in this tubed body of equipment in the cable adapter equipment which attached the lid in this body of equipment free [ attachment and detachment ], enabling free receipts and payments -- the ends side of this electric-wire cable -- a cable connector -- respectively -- connecting -- one side of these cable connectors -- a plug -- a conductor -- it has considered as the mini plug equipped with the section.

[0006] Since it becomes a letter of curl in the tubed body of equipment and the electric-wire cable is contained, portability is dramatically good. Moreover, when it is easy to pull out the electric-wire cable contained by becoming a letter of curl from the inside of the tubed body of equipment through cable connectors, such as a mini plug, and it connects pocket means of communications etc. with personal digital assistant equipment, those connection is also easy by the cable connector of an electric-wire cable, and it is dramatically user-friendly.

[0007]

[Embodiment of the Invention] Hereafter, the example of a gestalt of concrete implementation of this invention is explained with reference to a drawing.

[0008] Drawing 1 - drawing 3 and drawing 7 - drawing 9 are the things of the pen mold used when the cable adapter equipment 1 of the example of 1 operation gestalt of this invention is shown, and

connecting an electronic notebook (Personal Digital Assistant) 60 with PHS or a cellular phone (pocket means of communications) 50 or connecting the personal computer (Personal Digital Assistant) 70 which has PHS or a cellular phone 50, and a modem (modem).

[0009] As shown in drawing 1 - drawing 3, cable adapter equipment 1 consists of a tubed body 10 of equipment contained for the electric-wire cable 2 of the long picture of a laminating in the shape of curl inside, enabling free receipts and payments, and a tubed lid 20 attached free [ the attachment and detachment to the opening 11 by the side of the end face of this body 10 of equipment ]. The medium cap 21 attached in the opening 11 by the side of the end face of the above-mentioned body 10 of equipment free [ attachment and detachment ] while this lid 20 had the male-and-female conversion connector 30, While being attached in the base (back) side of this medium cap 21 free [ attachment and detachment ] and containing the short length electric-wire cable (other electric-wire cables) 6 of a laminating free [ receipts and payments ] in the shape of curl inside, it consists of head caps 22 which attached the clip 25 in the external longitudinal direction.

[0010] As shown in drawing 2 and drawing 3, the electric-wire cable 2 of the long picture contained in the body 10 of equipment is looped around in the shape of curl (laminating), and is elastic while arranging conductive members (graphic display abbreviation), such as three copper wire (three poles), in juxtaposition and having carried out insulating processing. Moreover, while having attached 3 pole mini plug (cable connector) 3 of a modular plug mold in the end of the electric-wire cable 2, the modular plug (cable connector) 4 is attached in the other end side of this electric-wire cable 2 through the conversion circuit 40 and connector interconnection-cable 2' which are later mentioned 3 poles / for 2 pole conversion. Mould shaping of the plug body of this mini plug 3 has been carried out so that it may become a modular plug configuration with synthetic resin. moreover, the plug equipped with three contact surfaces in the center of a transverse plane of this modular plug type of mini plug 3 -- a conductor -- section 3a is protruded. Furthermore, engaging and releasing to the heights (engagement section) 12a and 12a of the couple formed in the inner surface upside of the opening 12 by the side of the head of the body 10 of equipment of the claw parts (stop section) 3b and 3b of the couple by which projection formation was really carried out from the backside [ the top face ] of this mini plug 3 at front both sides is attained. And this modular plug type of mini plug 3 can be easily pulled out now from the opening 12 of the body 10 of equipment by holding and pulling the both-sides side of this mini plug 3 through each above-mentioned claw part 3b which engages and releases the heights 12a and 12a of a up Norikazu pair with a taper side from the notches 12b and 12b of the couple of the both sides of the opening 12 by the side of the head of the body 10 of equipment to order. furthermore, it is shown in drawing 3 -- as -- the plug of the mini plug 3 -- a conductor -- the receipt of section 3a in the electric-wire cable 2 looped around in the shape of [ within the body 10 of equipment ] curl is attained.

[0011] Moreover, as shown in drawing 2 and drawing 3, the modular plug 4 fixes through a predetermined means through the mounting piece 5 to the opening 11 by the side of the end face of the body 10 of equipment, and projects outside this opening 11. The attachment and detachment of the modular plug 4 which projected on this outside in the modular jack case 31 of one female mold of the male-and-female conversion connector 30 later mentioned through the claw parts (stop section) 4b and 4b of the couple of elastic lock piece section 4a are attained. And if the mini plug 3 of a modular plug mold is held and the electric-wire cable 2 of the letter of curl is pulled out and lengthened from the opening 12 by the side of the head of the body 10 of equipment, the overall length of this electric-wire cable 2 will become the long picture which are 0.5m-1m.

[0012] As shown in drawing 2 and drawing 3, the short length electric-wire cable 6 contained in the head cap 22 is looped around in the shape of curl (laminating), and is elastic while arranging conductive members (graphic display abbreviation), such as two copper wire (two poles), in juxtaposition and having carried out insulating processing. Moreover, the modular plugs (cable connector) 7 and 8 are attached in the both ends of the electric-wire cable 6. Engaging and releasing to the heights (engagement section) 23a and 23a of the couple formed in the inner surface bottom of the opening 23 by the side of the head of the head cap 22 of the claw parts (stop section) 7b and 7b of the couple formed in the both sides of elastic lock piece section 7a of the modular plug 7 of one of these is attained. Engaging and

releasing to the heights 23a and 23a of a up Norikazu pair with a taper side of elastic lock piece section 7a of this modular plug 7 is attained in the halfway condition of elastic deformation in order, and it can be easily pulled out now from the opening 23 of the head cap 22 by holding and pulling the both-sides side of this modular plug 7 from the notches 23b and 23b of the couple of the both sides of the opening 23 by the side of the head of the head cap 22.

[0013] Moreover, the modular plug 8 of another side fixes through a predetermined means through the mounting piece 9 to the opening 24 by the side of the end face of the head cap 22, and projects outside this opening 24. The attachment and detachment of the modular plug 8 which projected on this outside in the modular jack case 32 of the female mold of another side of the male-and-female conversion connector 30 later mentioned through the claw parts (stop section) 8b and 8b of the couple of elastic lock piece section 8a are attained. And if the modular plug 7 is held and the electric-wire cable 6 of the letter of curl is pulled out and lengthened from the opening 23 by the side of the head of the head cap 22, the overall length of this electric-wire cable 6 will become the die length which is 0.1m-0.2m.

[0014] As shown in drawing 2, the body 10 of equipment is formed in the abbreviation rectangular-head tubed which is roundish with synthetic resin, and has drilled window parts 13 and 13 in the abbreviation center section of the both-sides wall by the side of notch 12b of the couple at a head, and 12b, respectively. The electric-wire cable 2 of the letter of curl contained inside by each of these window parts 13 and 13 appears. Moreover, projection formation of the heights 12a and 12a of the couple to which the claw parts 3b and 3b of the couple of the mini plug 3 of the modular plug mold [ on the other hand / (end side) ] of the electric-wire cable 2 engage and release the inner surface upside of the opening 12 by the side of the head of the body 10 of equipment has really been carried out.

Furthermore, in the opening 11 by the side of the end face of the body 10 of equipment, extraction and insertion of before [ the medium cap 21 of a lid 20 ] side peripheral face 21a is attained.

[0015] As shown in drawing 2, the medium cap 21 of a lid 20 is formed in the abbreviation rectangular-head tubed which is roundish with synthetic resin, and has really carried out projection formation of the lobe 21c which constitutes the same field as the peripheral face of the body 10 of equipment into the boundary parts (a part for a center section) of before side peripheral face 21a and backside peripheral face 21b. Projection formation of the 21d of the radii sections for positioning has really been carried out at the head side of the clip 25 of this lobe 21c. Moreover, in the abbreviation rectangular-head tubed medium cap 21 with this radius of circle, the male-and-female conversion connector 30 which the modular plug 4 by the side of the other end of the electric-wire cable 2 by the side of the body 10 of equipment and the modular plug 8 of the end of the electric-wire cable 6 by the side of the head cap 22 take out and insert is inserted in.

[0016] As shown in drawing 2, drawing 3, and drawing 5, the male-and-female conversion connector 30 The modular jack case 31 of a female mold with opening 31a which the modular plug 4 of the male by the side of the other end of the electric-wire cable 2 by the side of the body 10 of equipment takes out and inserts to a transverse-plane side (insulator), The modular jack case 32 with opening 32a which the modular plug 8 of the male of the end of the electric-wire cable 6 by the side of the head cap 22 takes out and inserts in contact with the tooth back of this modular jack case 31 to a transverse-plane side (insulator), It is constituted by the contacts (terminal) 33 and 33 of two (4 [ or ]) which unify these modular jack cases 31 and 32 by bending of both ends 33a and 33b. The crevices (engagement section) 31b and 31b formed in the vertical side of each [ these ] modular jack cases 31 and 32, and 32b and 32b are made to stop each claw parts (stop section) 21e and 21e which really projected in the inner surface of the medium cap 21. Each modular jack cases 31 and 32 It is assembled by covering with the medium cap 21.

[0017] Moreover, a pair each of heights (engagement section) 31c and 31c which the back consists taper side-like of, and 32c and 32c are really formed in the both ends 33a and 33b of each contacts 33 and 33 of the openings 31a and 32a of each modular jack case 31, and the inner surface both sides which counter, respectively. To this pair each of an of heights 31c and 31c, and 32c and 32c, a pair each of claw parts 4b and 4b of each elastic lock piece sections 4a and 8a of each of said modular plugs 4 and 8, and 8b and 8b When engaging and releasing of these each elastic lock piece sections 4a and 8b is

attained in the halfway condition of elastic deformation and they remove the medium cap 21 and the head cap 22, each above-mentioned both stop condition is canceled simply.

[0018] As shown in drawing 2 and drawing 3, the head cap 22 of a lid 20 is formed in the abbreviation rectangular-head tubed which is roundish with synthetic resin, and the electric-wire cable 6 of the letter of curl is contained by the interior. Moreover, projection formation of the heights 23a and 23a of the couple which the claw parts 7b and 7b of the couple of elastic lock piece section 7a of the modular plug 7 of another side (other end side) of the electric-wire cable 6 engage and release has really been carried out at the inner surface bottom of the opening 23 by the side of the head of the head cap 22.

Furthermore, extraction and insertion of side peripheral face 21b is attained after the medium cap 21 of a lid 20 in the opening 24 by the side of the end face of the head cap 22. The modular plug 8 of another side which projected outside the opening 24 by the side of the end face of the head cap 22 at the time of this insertion is inserted in opening 32a of one modular jack case 32 of the male-and-female conversion connector 30 of the medium cap 21. Furthermore, 24d of crevices in which 21d of radii sections for positioning of the medium cap 21 is inserted is formed in the head side of the clip 25 of the opening 24 by the side of the end face of the head cap 22.

[0019] Furthermore, as shown in drawing 2, drawing 3, and drawing 6, between two contact-surfaces 2a' of the end of connector interconnection-cable 2' which consists of three contact-surfaces 2a of the other end of a power cable 2, 2b, 2c, two copper wire (two poles), etc. which consists of three copper wire (three poles) etc., and 2b', the conversion circuit 40 3 poles / for 2 pole conversion is intervened. This conversion circuit 40 consists of the rectangular circuit board 41, capacitors 42 and 42 of the couple mounted on this circuit board 41, respectively, three resistance 43, 44, and 45, and a transformer 46. and contact-surface 2a of the end of a power cable 2 -- the plug of the mini plug 3 -- a conductor -- it connects with SP jack side of section 3a -- having -- moreover, contact-surface 2b of the end of a power cable 2 -- the plug of the mini plug 3 -- a conductor -- it connects with the Media Interface Connector jack side of section 3a. Furthermore, each contact-surface 2a[ of connector interconnection-cable 2' ]' and 2b' are connected to each jack side of the modular plug 4, respectively.

[0020] And as shown in drawing 7 - drawing 9, extraction and insertion of the mini plug 3 of a modular plug mold to the modular plug socket 51 of the female mold of PHS or a cellular phone (means of communications) 50 is attained with the male of the end of the electric-wire cable 2 contained by the body 10 of equipment. Moreover, as shown in drawing 7 and drawing 8, extraction and insertion of the modular plug 7 of one male of the electric-wire cable 6 contained by the head cap 22 to the modular plug socket 61 of the female mold of the Personal Digital Assistant of electronic notebook 60 grade is attained. Furthermore, as shown in drawing 9, the plug of the modular plug 71 of the male of the Personal Digital Assistant of the personal computer 70 grade which has a modem in modular jack case 32 (modular plug socket which modular plug 8 of male of another side of electric-wire cable 6 contained by the head cap 22 takes out and inserts) 32 of the female mold of the male-and-female conversion connector 30 exposed by sampling the head cap 22 from the medium cap 21 of a lid 20 has become free. As shown in drawing 10 Height 32c of the couple of the above-mentioned modular jack case 32 with [ to the back / in this elastic lock piece section 71a / claw parts / 71b and 71b / of the couple of elastic lock piece section 71a of the modular plug 71 of a personal computer 70 ] a taper side in the halfway condition of elastic deformation, Engaging and releasing has become free at 32c, and if the electric-wire cable 72 which attached the modular plug 71 is pulled by the strong force, from the modular jack case 32, this modular plug 71 will separate simply and will carry out an open circuit etc.

[0021] Above, the cable adapter equipment 1 of the example of an operation gestalt of a configuration is used, when connecting PHS or a cellular phone 50, and electronic notebook 60 grade or connecting PHS or a cellular phone 50, and personal computer 70 grade. namely, as shown in drawing 7, in connecting the Personal Digital Assistant of electronic notebook 60 grade with PHS or a cellular phone 50 with cable adapter equipment 1 A male draws out the electric-wire cable 2 of the letter of curl within the body 10 of equipment through the mini plug 3 of a modular plug mold. the plug of the mini plug 3 of this modular plug mold -- a conductor, while inserting section 3a in the modular plug socket 51 of the female mold of PHS or a cellular phone 50 and connecting The electric-wire cable 6 of the letter of curl

in the head cap 24 of a lid 20 is pulled out through the modular plug 7 of a male, and this modular plug 7 is inserted in the modular plug socket 61 of the female mold of an electronic notebook 60, and it connects. By connecting PHS or a cellular phone 50, and an electronic notebook 60 by such easy actuation, collection, informational retrieval or dispatch, etc. can be communicated easily.

[0022] moreover, as shown in drawing 8, when the clip 25 was used for the body side of the electronic notebook 60 which is a small Personal Digital Assistant (for example, carrying case etc.), and it attaches cable adapter equipment 1 or contains Also in case electronic notebook 60, PHS, or cellular-phone 50 grade is connected not to mention the ability to carry in this condition it is used like the above in the condition [ having fixed cable adapter equipment 1 to an electronic notebook 60 side with a clip 25 ] (the plug of the mini plug 3 of a modular plug mold -- a conductor, while inserting section 3a in the modular plug socket 51 of the female mold of PHS or a cellular phone 50 and connecting) The modular plug 7 can be inserted in the modular plug socket 61 of the female mold of an electronic notebook 60, it can connect, and improvement in user-friendliness is achieved further.

[0023] furthermore, as shown in drawing 9, in connecting personal computer 70 grade with PHS or a cellular phone 50 with cable adapter equipment 1 A male draws out the electric-wire cable 2 of the letter of curl within the body 10 of equipment of cable adapter equipment 1 through the mini plug 3 of a modular plug mold. the plug of the mini plug 3 of this modular plug mold -- a conductor, while inserting section 3a in the modular plug socket 51 of the female mold of PHS or a cellular phone 50 and connecting The head cap 24 of a lid 20 is removed, and the modular plug 71 of the male of the electric-wire cable 72 of a personal computer 70 is inserted in the modular jack case 32 of the female mold of the sex conversion adapter 30 in the medium cap 21, and it connects with it. In this connection condition, as shown in drawing 10 Since elastic lock piece section 71a of the modular plug 71 of a personal computer 70 has stopped the claw parts 71b and 71b of the couple in the halfway condition of elastic deformation at the back to the heights 32c and 32c of the couple of the above-mentioned modular jack case 32 with a taper side Even if it pulls strongly accidentally the electric-wire cable 72 which attached the modular plug 71 The modular plug 71 separates simply from the modular jack case 32, the electric-wire cable 72 is not damaged, or the modular plug 71 does not separate from the electric-wire cable 72.

[0024] Thus, PHS or a cellular phone 50, an electronic notebook 60, or personal computer 70 grade can be used using the cable adapter equipment 1 which contained the electric-wire cables 2 and 6 of merits and demerits, connecting by very easy actuation. Moreover, if each electric-wire cables 2 and 6 are contained on the body 10 of equipment, and the head cap 22 when not using the electric-wire cable 2 and 6 grades, as shown in drawing 8, it can carry around freely together like a pen with the small Personal Digital Assistant of electronic notebook 60 grade, or the clip 25 of the head cap 22 can be further hooked on a predetermined location, carrying etc. can be carried out, and portability is dramatically good. Although extended comparatively long, since it is easy to contract, the electric-wire cables 2 and 6 of the letter of curl can be contained in the body 10 of equipment, or easy in the head cap 22 and a compact at the time of receipt, and it is not necessary to roll them round after communication link termination, and they are dramatically user-friendly further again.

[0025] Moreover, since the body 10 of equipment and the head cap 22 have become in midair, lightweight-ization of the whole equipment can be attained. Furthermore, since the modular jack cases 31 and 32 of a couple are made into very close structure, it unifies by bending of the both ends 33a and 33b of contact (terminal) 33 and the male-and-female conversion connector 30 to which the modular plug 71 of a personal computer 70 is connected was contained in the medium cap 21 of a lid 20, manufacture becomes easy and it can attain small and lightweight-ization. The male-and-female conversion connector 30 has a printed circuit board, an unnecessary lead wire, etc., soldering, caulking, etc. are unnecessary, since the outer case of the male-and-female conversion connector 30 is moreover made to serve a double purpose with the medium cap 21, components mark can be reduced substantially and lightweight-izing and low cost-ization can be attained much more further again.

[0026] In addition, while it loops around the connector interconnection cable which connected this modular plug in the shape of curl, extraction and insertion of the modular plug of the male by the side of

the other end of the electric-wire cable within the body of equipment is enabled, and the direct difference of it is carried out to the modular plug socket of the female mold of a personal computer etc., and you may enable it according to said example of an operation gestalt, to connect it to it from opening by the side of the end face of the body of equipment, although it fixed to the body side of equipment. Moreover, as for cable adapter equipment, it is needless to say that it can use not only when connecting between a Personal Digital Assistant, PHS, or a cellular phone, but when connecting the telephone line, indoor telephone, an indoor large-sized terminal unit, etc. Furthermore, although the clip was attached in the head cap side, you may make it attach in the medium cap or body side of equipment.

[0027]

[Effect of the Invention] In the cable adapter equipment which attached the lid in this body of equipment free [ attachment and detachment ] while containing the electric-wire cable in the body of equipment as mentioned above according to this invention While containing the above-mentioned electric-wire cable which formed the above-mentioned body of equipment in tubed, and was looped around in the shape of curl in this tubed body of equipment, enabling free receipts and payments the ends side of this power cable -- a cable connector -- respectively -- connecting -- one side of these cable connectors -- a plug -- a conductor -- since carrying etc. is possible where the above-mentioned electric-wire cable is contained by having considered as the mini plug equipped with the section, portability can be raised further. Moreover, the electric-wire cable contained by becoming a letter of curl from the inside of the tubed body of equipment can be easily pulled out through cable connectors, such as a mini plug, when connecting pocket means of communications etc. with a terminal unit, the above-mentioned electric-wire cable can be connected easily, and it is dramatically user-friendly.

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**TECHNICAL FIELD**

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**[Field of the Invention]** This invention is cylindrical and relates to the portable good new cable adapter equipment which stored the electric-wire cable of the letter of curl in the pen type case, for example.

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**PRIOR ART**

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[Description of the Prior Art] For example, Personal Digital Assistants (PDA:Personal Digital Assistants) which have an electronic notebook and a modem (modem), such as a personal computer and pocket facsimile, are known. When using this Personal Digital Assistant outdoors etc., collection, informational retrieval or dispatch, etc. can be communicated by connecting a Personal Digital Assistant to communication lines, such as an ISDN dial-up line, through a portable electric-wire cable.

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## EFFECT OF THE INVENTION

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[Effect of the Invention] In the cable adapter equipment which attached the lid in this body of equipment free [ attachment and detachment ] by this invention as mentioned above while containing the electric-wire cable in the body of equipment While containing the above-mentioned electric-wire cable which formed the above-mentioned body of equipment in tubed, and was looped around in the shape of curl in this tubed body of equipment, enabling free receipts and payments the ends side of this power cable -- a cable connector -- respectively -- connecting -- one side of these cable connectors -- a plug -- a conductor -- by having considered as the mini plug equipped with the section, where the above-mentioned electric-wire cable is contained, carrying etc. is possible. Therefore, portability can be raised further. Moreover, the electric-wire cable contained by becoming a letter of curl from the inside of the tubed body of equipment can be easily pulled out through cable connectors, such as a mini plug, when connecting pocket means of communications etc. with a terminal unit, the above-mentioned electric-wire cable can be connected easily, and it is dramatically user-friendly.

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**MEANS**

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[Means for Solving the Problem] while contain an electric-wire cable in the body of equipment and containing the above-mentioned electric-wire cable which formed the above-mentioned body of equipment in tubed, and looped around in the shape of curl in this tubed body of equipment in the cable adapter equipment which attached the lid in this body of equipment free [ attachment and detachment ], enabling free receipts and payments -- the ends side of this electric-wire cable -- a cable connector -- respectively -- connecting -- one side of these cable connectors -- a plug -- a conductor -- it has considered as the mini plug equipped with the section.

[0006] Since it becomes a letter of curl in the tubed body of equipment and the electric-wire cable is contained, portability is dramatically good. Moreover, when it is easy to pull out the electric-wire cable contained by becoming a letter of curl from the inside of the tubed body of equipment through cable connectors, such as a mini plug, and it connects pocket means of communications etc. with personal digital assistant equipment, those connection is also easy by the cable connector of an electric-wire cable, and it is dramatically user-friendly.

[0007]

[Embodiment of the Invention] Hereafter, the example of a gestalt of concrete implementation of this invention is explained with reference to a drawing.

[0008] Drawing 1 - drawing 3 and drawing 7 - drawing 9 show the cable adapter equipment 1 of the example of 1 operation gestalt of this invention, and are PHS or a cellular phone.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The perspective view of the cable adapter equipment of the example of 1 operation gestalt of this invention.

[Drawing 2] The decomposition perspective view of the above-mentioned cable adapter equipment.

[Drawing 3] The sectional view of the above-mentioned cable adapter equipment.

[Drawing 4] For (a), (b) is the front view showing some above-mentioned cable adapter equipments in a cross section, and the rear view showing the same section in a cross section.

[Drawing 5] (a) - (d) is the explanatory view showing the assembly sequence of the male-and-female conversion connector used for the above-mentioned cable adapter equipment.

[Drawing 6] The block diagram of the conversion circuit 3 poles / for 2 pole conversion used for the above-mentioned cable adapter equipment.

[Drawing 7] The explanatory view showing the 1st operating condition of the above-mentioned cable adapter equipment.

[Drawing 8] The explanatory view showing the modification of the 1st operating condition of the above-mentioned cable adapter equipment.

[Drawing 9] The explanatory view showing the 2nd operating condition of the above-mentioned cable adapter equipment.

[Drawing 10] The amplification explanatory view of the important section in the 2nd operating condition of the above.

[Description of Notations]

1 -- cable adapter equipment and 2 -- an electric-wire cable, 3 -- mini plug (cable connector), and a 3a-- plug -- a conductor -- the section, a 4 -- modular plug (cable connector), and 6 -- a short length electric-wire cable (other electric-wire cables), the body of 10 -- equipment, and 20 -- a lid, 21 -- medium cap, a 22 -- head cap, and 25 -- a clip, 30 -- male-and-female conversion connector, and 40 -- conversion circuit.

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[Translation done.]

\* NOTICES \*

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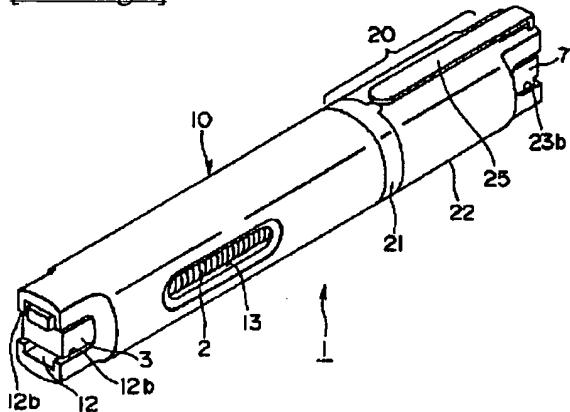
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DRAWINGS

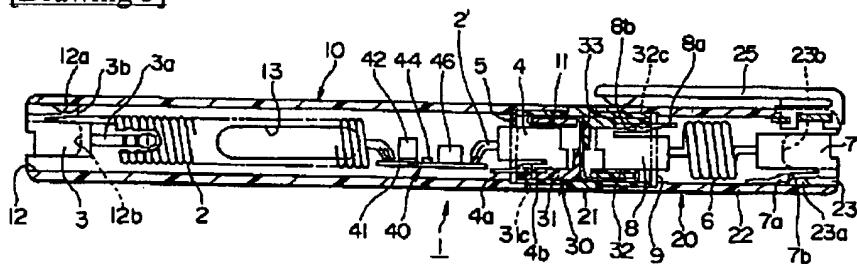
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[Drawing 1]



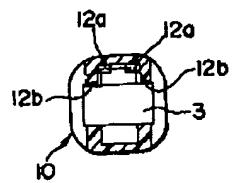
1…ケーブルアダプター装置  
2…電線ケーブル  
3…ミニプラグ  
3a…プラグ導体部  
4…ケーブルコネクタ  
6…他の電線ケーブル  
10…装置本体  
20…蓋体  
21…中間キャップ  
22…ヘッドキャップ  
25…クリップ  
30…雄雌変換コネクタ  
40…変換回路

[Drawing 3]

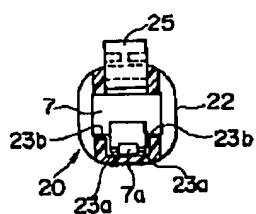


[Drawing 4]

(a)

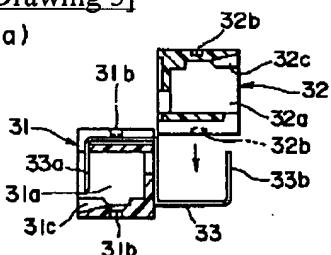


(b)

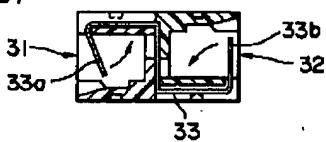


[Drawing 5]

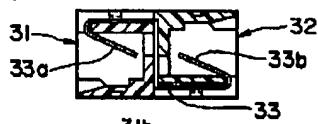
(a)



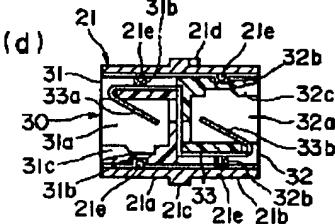
(b)



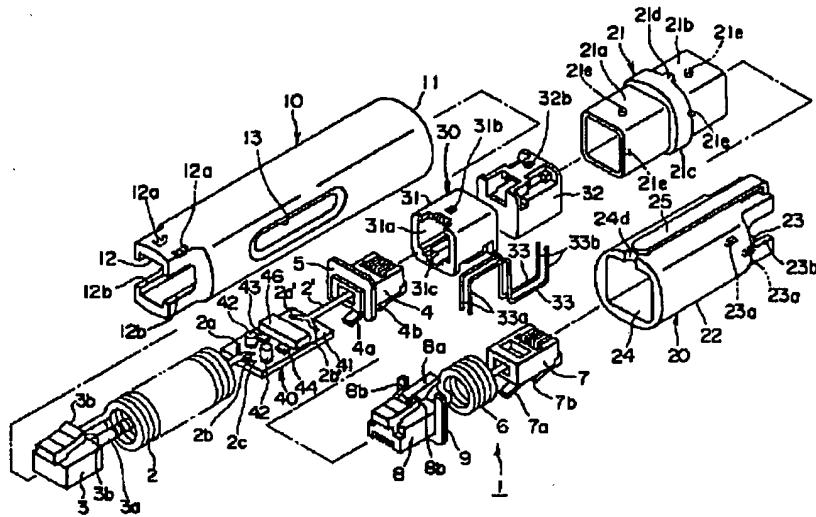
(c)



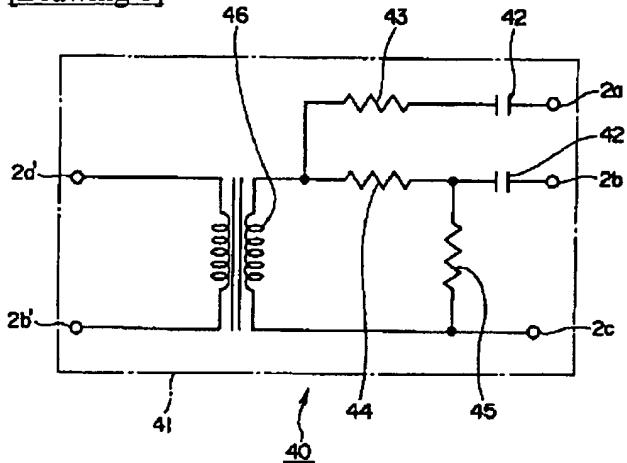
(d)



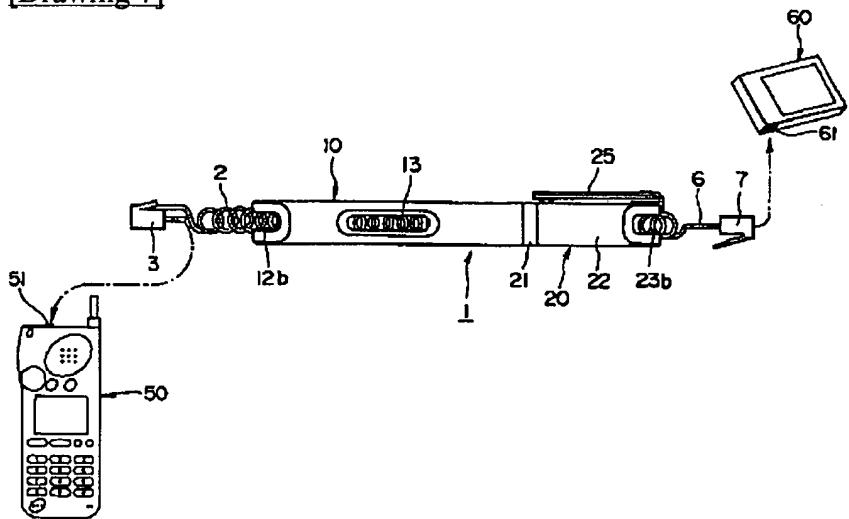
[Drawing 2]



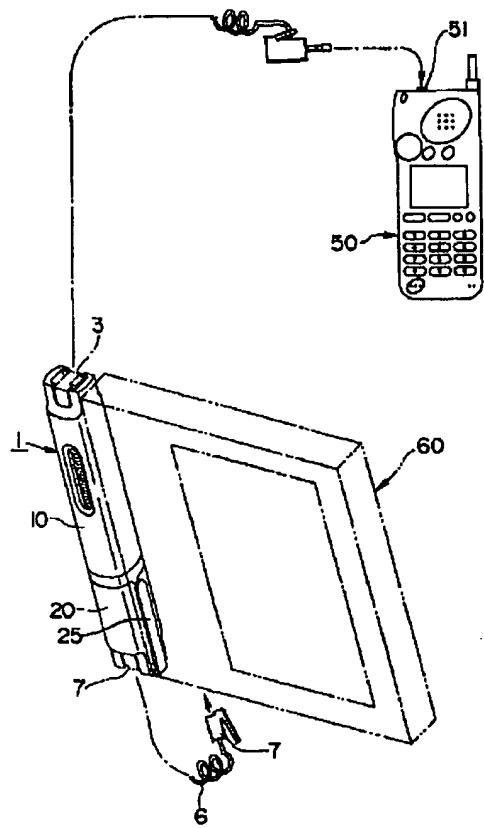
### [Drawing 6]



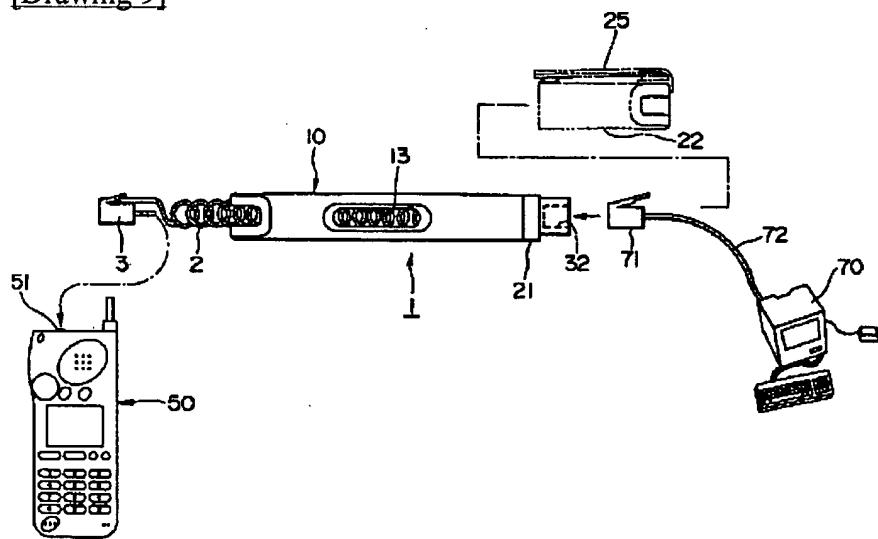
### [Drawing 7]



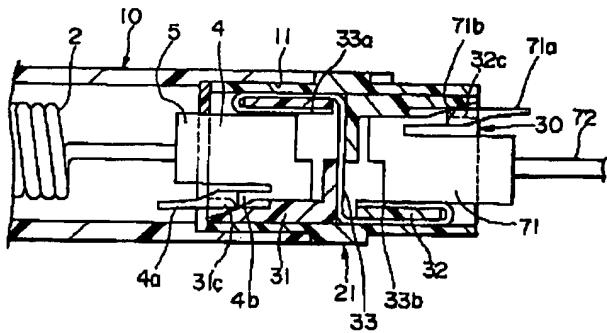
### [Drawing 8]



[Drawing 9]



[Drawing 10]



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